

PATENT COÖPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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28. Jan. 2005

TBK - PATENT

WRITTEN OPINION
(PCT Rule 66)

Date of mailing
(day/month/year)

27.01.2005

Applicant's or agent's file reference
WO 40173

REPLY DUE

within 2 month(s)
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International application No.
PCT/IB 03/06227

International filing date (day/month/year)
30.12.2003

Priority date (day/month/year)
15.01.2003

International Patent Classification (IPC) or both national classification and IPC
F02F7/00

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA et al.

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority..

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 15.05.2005

Filed:
Examined:

27.1.05

WV 27.1. ✓

Name and mailing address of the international preliminary examining authority:



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I. Basis of the opinion

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

Description, Pages

1-20 as originally filed

Claims, Numbers

1-26 as originally filed

Drawings, Sheets

1/20-20/20 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation (Form PCT/IPEA/405) to restrict or pay additional fees, the applicant has:

- ☐ restricted the claims.
- ☒ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees:

3. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this opinion:

- ☒ all parts.
- ☐ the parts relating to claims Nos. .

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-7,22
Inventive step (IS)	Claims	
Industrial applicability (IA)	Claims	

2. Citations and explanations

see separate sheet

Ref. to Item IV

According to the objection of non unity (s. Invitation to pay additional fees) the two inventions are covered by the claims as follows:

- I: Claims 1-7 and 13-23 directed to a cylinder block and an engine main body with an outer cylinder block which forms the exterior wall of the water jacket, while being pressed between the cylinder head and a main body cylinder block;
- II: Claims 8-12 and 24 - 26 directed to a cylinder head and engine main body with an outer cylinder head which forms the exterior wall of the water jacket, while being pressed between the main body cylinder head and the cylinder block;

Ref. to item V

Reference is made to the following documents:

D1: US4930470

D2: US4848292

INVENTION I (1-7 and 13-23)

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-7 and 22 is not new in the sense of Article 33(2) PCT.

The prior art document D1 shows a cylinder block 10 with a water jacket 20 and a separate cylinder head 15 which presents the following features:

- 1. The main body cylinder block (16+17) has a mounting surface 17 and defines the cylinder side of the water jacket 20 (s. fig.1)
- 2. The outer cylinder block 33 is moulded separately (s. column 3, lines 1 to 9);
- 3. The outer cylinder block 33 defines a side of the water jacket opposite the cylinder side and define together with the main body cylinder block the water jacket 20 (s. fig. 1);

4. The outer cylinder block 33 is fixed in place while pressed with bolts 45 between the cylinder head 15 and the main body cylinder block (16+17) (s. fig. 1, 2, on column 2, lines 23 to 29 and on column 3 lines 24 to 36);
5. A positioning portion 33b, 47 is foreseen on the main body cylinder block (16+17) and the outer cylinder block 33 (s. figs. 3 to 5 and column 2, lines 42 to 50);
6. The outer cylinder block is formed of a resin composite (column 3, lines 1 to 9);
7. The main body cylinder block is moulded by casting from an aluminium alloy (column 2, lines 30 to 42) and defines cylinder liners (s. fig. 2);

Therefore subject-matter of claims 1 to 7 and 22 is known.

To claim 13:

An engine main body according to independent claim 13 whereby a common outer cylinder block, which is separately moulded, defines the outer wall of the water jacket of both the cylinder head and the main body cylinder block solves the water jacket casting problems related to cylinder head and cylinder block as well. Such a configuration is neither suggested nor disclosed by the available prior art.

Claims 14-21 and 23 are all dependent on claim 13 and such also meet the requirements of PCT with respect of novelty and inventive step.

INVENTION II (claims 8-12 and 24 - 26)

The closest prior art document D2 shows a composite cylinder head 10 whereby the cylinder head water jacket is built between a resin made outer part and a combustion chamber and port unit 12. However according to the second invention the outer cylinder head is pressed between the main body cylinder head and the cylinder block, whereas the combustion chamber and port unit 12 of D2 is clamped between the outer part and the cylinder block. Such a fixation solution is different as the one in D2 and is also not suggested by the available prior art.

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/IB 03/06227

Claims 9 to 12 and 24, 25 are dependent on claim 8 and such also meet the requirements of PCT with respect of novelty and inventive step.

To claim 26

Independent claim 26 seems to address the same subject matter as claim 8, therefore for sake of clarity it is suggested to be deleted.